

REMARKS

Claims 1, 3, 4, 9-12 and 14-24 are pending.

Claims 2, 5-8 and 13 have been canceled.

Claim 1 has been amended to recite:

1) That the calcined product of stimuable phosphor is produced by calcining in a furnace BaFBr:Eu, BaFI:Eu or a mixture thereof in a range from 750 to 900°C for 2 to 6 hours in an atmosphere comprising nitrogen, then reducing the temperature of the furnace to 750° or less over a period of at least 30 minutes, and thereafter the atmosphere in the furnace is replaced with a nitrogen gas containing oxygen. Support can be found in the specification at page 10.

2) That the dispersion medium is methyl ethyl ketone. Support can be found in the specification on page 13, first full paragraph.

3) That a propeller stirrer is used to disperse the calcined product. Support can be found on page 29, first paragraph.

4) That the amount of a stimuable phosphor with respect to that of the dispersion medium in the aggregate reduction process is in a range from 10 to 300 parts by weight in 100 parts by weight of dispersion medium. Support can be found on page 13 of the specification.

5) That a mixing ratio of the binder and the stimuable phosphor is in a range from 1:8 to 1:40. Support can be found on page 21.

6) That the binder is a polyurethane. Support can be found on page 20.

Support for new claim 21 can be found on page 10, first paragraph of the specification.

Support for new claims 22-23 can be found on page 28, lines 5-6 from the bottom.

Support for new claim 24 can be found on page 22, lines 11-12 and page 27, line 1 of the specification.

No new matter has been added by way of the above-amendment.

**Issues under 35 U.S.C. § 103**

The Examiner has maintained the rejections of record. The following rejections are pending:

- A) Claims 1-3, 6-7, 9-10, 12-13 and 20 are rejected under 35 USC §103(a) as being unpatentable over Weiss '550 (US Patent No. 4,028,550) in view of Leblans '578 (US Patent No. 5,360,578);
- B) Claim 4 is rejected under 35 USC §103(a) as being unpatentable over Weiss '550 in view of Leblans '578 and further in view of Jamil '916 (US Patent No. 5,772,916);
- C) Claim 8 is rejected under 35 USC §103(a) as being unpatentable over Weiss '550 in view of Leblans '578 and further in view of Ochiai '971 (US Patent No. 4,501,971); and
- D) Claim 11 is rejected under 35 USC §103(a) as being unpatentable over Weiss '550 in view of Leblans '578 and further in view of Hultsch '454 (US Patent No. 4,405,454).

Applicant respectfully traverses each of the rejections.

We now briefly summarize the recent prosecution in this application.

On April 12, 2005, Applicant filed an Amendment wherein Applicant argued that none of the cited references teach or fairly suggest the specific order of steps for manufacturing a radiation image conversion panel as recited in claim 1. Also, Applicant provided a Declaration under 37 C.F.R. 1.132 by Mr. Masaharu Nakatsu (4/12/05 Declaration) with the April 12, 2005 Amendment to show that the specifically claimed order of steps provides a radiation image conversion panel having unexpectedly superior properties to the radiation image conversion panel of the prior art.

In response to the 4/12/05 Declaration (and Applicant's comments), *the Examiner agreed that the 4/12/05 Declaration has shown unexpected results*, however, the Examiner has taken a position that Applicant's showing of unexpected results is not commensurate in scope with the

claims. In other words, the Examiner has taken a position that Applicant's showing of unexpected results is limited to the following features a)-g):

- a) a particular phosphor,
  - b) a particular calcining process,
  - c) a particular classification process,
  - d) a particular slurry material, and
  - e) a particular binder and concentration,
- and that the radiation image conversion panel must have
- f) a reflective undercoating layer and
  - g) a protective film.

In response, Applicant has herein amended claim 1 by limiting each of features a)-e) as suggested by the Examiner. For a showing of unexpected results to be commensurate in scope with the claimed invention, the skilled artisan must reasonably conclude that the entire scope of the claims would provide unexpected results based upon the experimental evidence. Applicant respectfully submits that the showing of unexpected results is commensurate in scope with the claims, as presently amended.

The Examiner acknowledges that the inventive order of steps in the process is not explicitly taught by the cited prior art. However, the Examiner has taken the position that it is *prima facie* obvious to change the order of steps taught in the prior art process in all situations, and especially in the present one.

Without conceding to the Examiner's position that the cited art constitutes a *prima facie* case of obviousness, Applicant has limited the claims to advance prosecution.

In the 4/12/05 Declaration, experiments are described as evidence that the inventive order of steps provides a product having unexpectedly superior properties over the product formed by the process of the base reference to Weiss '550. The merits of this evidence are now discussed.

In choosing an experimental design to show unexpected results over a base reference, ideally only a single variable is changed, but that is not possible in this case, since the claimed process differs from the exemplified process of Weiss '550 with respect to: a) the inventive process incorporates calcined phosphor whereas Weiss '550 does not disclose a calcined phosphor; and b) the inventive process has a different order of steps than the order of steps performed by Weiss '550.

Since two variables differ between the presently claimed method and the method of Weiss '550, it was necessary to conduct four separate processes as follows:

Inventive Example A: calcined phosphor and inventive method

- a) adding a calcined phosphor
- b) wet classifying
- c) adding a binder

Comparative Example B: noncalcined phosphor and inventive method

- a) adding a noncalcined phosphor
- b) wet classifying
- c) adding a binder

Comparative Example C: calcined phosphor and method of Weiss '550

- a) adding a binder
- b) adding a calcined phosphor
- c) wet classifying

Comparative Example D: noncalcined phosphor and method of Weiss '550

- a) adding a binder
- b) adding a noncalcined phosphor
- c) wet classifying

The radiation image conversion panels A-D were prepared based on the process of Inventive Example A and Comparative Examples B-D, respectively.

From the measurement results, it was revealed that radiation image conversion panels B and D (both were comparative examples), which were manufactured using uncalcined product, hardly exhibited stimuable emission, and their image qualities were so poor to be not worthy of evaluation.

Next, the graininess of radiation image conversion panels A and C, which exhibited stimuable emission, were evaluated. From the measurement results, it was found that the graininess of radiation image conversion panel A (the present invention), with which the calcined product was wet-classified before being mixed with the binder, was excellent and about 40% better than that of radiation image conversion panel C (comparative example), with which the calcined product was mixed with the binder before being wet-classified.

The results of these experiments are described in the following Table 1, which is reproduced herein for the Examiner's convenience.

**Table 1**

<b>Radiation image conversion panel</b>	<b>Coating liquid preparation process</b>	<b>Sensitivity</b>	<b>Graininess (<math>\times 10^3</math>)</b>	<b>Remarks</b>
A	Calcined product was wet-classified before being mixed with binder	100	3.2	Present invention
B	Uncalcined product was wet-classified before being mixed with binder	0.13	-	Comparative example
C	Calcined product was mixed with binder before being wet-classified	91	5.3	Comparative example
D	Uncalcined product was mixed with binder before being wet-classified	< 0.1	-	Comparative example

It is apparent from Table 1 that the superior results are obtained by selecting the order of performing the process steps. In view of the fact that the skilled artisan would not envision any increase in properties of the product radiation image conversion panel based on modifying the order of the steps, the present method is truly unexpected.

Furthermore, the 4/12/05 Declaration describes experiments, which were performed in order to verify the effects of vigorous stirring in a large quantity of dispersion medium and ball milling on the samples. As can be seen from Example 1, Weiss '550 teaches the use of ball milling of the phosphor whereas the inventive process includes stirring.

The measurements were expressed as relative values, assuming that the value of sample G is 100, and the results are given in Table 2.

**Table 2**

<b>Sample name</b>	<b>Calcined or uncalcined</b>	<b>Process applied to samples</b>	<b>Amount of stimuable emission</b>	<b>Remarks</b>
E	Uncalcined	Stirring	0.1	Comparative example
F	Uncalcined	Ball milling	< 0.1	Comparative example
G	Calcined	Stirring	100	Present invention
H	Calcined	Ball milling	47	Comparative example

A comparison between sample E and sample G, or between sample F and sample H, illustrates that the samples not subjected to calcination exhibited an insufficient amount of stimuable emission. Moreover, comparison between sample H, which was ball-milled, and sample G that was vigorously stirred at 500 rpm, shows that ball milling remarkably decreases the amount of stimuable emission.

It is apparent from Table 2 that the superior results are obtained by vigorous stirring such as described in inventive claim 1 in a large quantity of dispersion medium versus ball milling on the samples. In view of the fact that the skilled artisan would not envision any increase in properties of the product radiation image conversion panel based on replacing the ball milling step with the vigorous stirring of the present invention, the method of present claim 1 is truly unexpected.

Based on the unexpected results of the present invention, even if a *prima facie* case of obviousness did exist, it would be overcome. As such, withdrawal of the rejections is respectfully requested.

Lastly, Applicant maintains the position that the Examiner has not initially set forth a *prima facie* case of obviousness in view of the cited references. Applicant respectfully disagrees with the proposition that it is *prima facie* obvious to change the order of steps taught in the prior art in all situations, and especially in the present one.

In support of his position, the Examiner cites to MPEP 2144.04(IV)(C) and the cases cited therein.

Applicant maintains the position that reliance on per se rules of obviousness is legally incorrect. As stated in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995)

The use of per se rules, while undoubtedly less laborious than a searching comparison of the claimed invention — including all its limitations — with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. Per se rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. But reliance on per se rules of obviousness is legally incorrect and must cease.

Applicant also notes *In re Cofer*, 354 F.2d 664, 667, 148 USPQ 268, 271 (CCPA 1966), stating that “it is facts appearing in the record, rather than prior decisions in and of themselves, which must support the legal conclusion of obviousness under 35 U.S.C. § 103.”

In view of the fact that Applicant has shown that a change the order of steps provides a different product, a *prima facie* case of obviousness cannot be said to exist over the teachings of the cited references based on per se rules applied by the Examiner. As such, withdrawal of the rejections is respectfully requested.

Application No. 09/612,543  
Amendment dated January 11, 2005  
Reply to Office Action of July 11, 2005

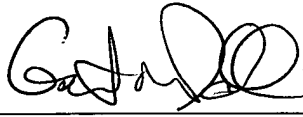
Docket No.: 1982-0153P

The present application well-describes and claims patentable subject matter. The favorable action of allowance of the pending claims and passage of the application to issue is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq. (Reg. No. 43,575) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Dated: January 11, 2006

Respectfully submitted,

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